

# Business Continuity / Disaster Recovery IT Audit

City of Minneapolis – Internal Audit Department  
April 9, 2018

The IT Department maintained an emergency response and disaster recovery plan for a limited set of City systems. The audit recommends developing a complete response and recovery plan supported by a formal business impact analysis to improve the City's readiness to respond to emergencies.



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## Internal Audit Department

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**Date:** April 9<sup>th</sup>, 2018

**Subject:** Business Continuity / Disaster Recovery Audit

**From:** Backbone Enterprises, Inc.

**To:** Audit Committee, Mayor Jacob Frey, City Council Members, Otto Doll, Beth Cousins, Bob Arko, and City Coordinator Nuria Rivera-Vandermyde

## Background

The City of Minneapolis (City) should be prepared to deal with a major disruption such as a cyber-attack, sabotage, technical failure, force of nature, etc. In the event of a disruption, procedures must be in place to effectively and efficiently recover and restore business operations to normalcy.

A Business Continuity Plan (BCP) provides information of how to sustain business operations while recovering from a disaster. A Disaster Recovery Plan (DRP) provides procedures on how information technology and other key infrastructure can be recovered after a disaster. The BCP provides the key business processes and risk thresholds that are then incorporated into the DRP as key recovery times for systems and infrastructure. The City's Information Technology (IT) department requested Internal Audit assess the adequacy of DRP coverage.

## Objective, Scope and Approach

Internal Audit conducted a BCP/DRP review to note the design and implementation of the controls within these processes. The controls were benchmarked against the National Institute of Standards and Technology (NIST) 800-34, Rev 1. The objectives of the audit were to review whether:

- A formal Business Impact Analysis (BIA) exists and has identified operational and financial impacts that the City could suffer due to an unexpected loss of operational capabilities.
- A formal DRP exists that establishes information systems operations recovery procedures in the event of a disaster.
- A formal BCP exists that establishes procedures to restore business operations within the required time frame objectives outlined in the BIA.

- Information systems are regularly backed up according to the DRP.
- The City tests backups to verify information recoverability, integrity and availability.

## Observations and Recommendations

### I. Business Impact Analysis (BIA)

A formal BIA for the City could not be identified. Without a BIA, the City cannot properly identify business processes recovery criticality, and properly prioritize business as well as system resources. Without a complete and formal BIA exercise being completed, there is an increased risk that in the event of a disaster some critical systems, applications or infrastructure would not be recovered in a timely manner. This could result in an interruption of services and potential loss of data and resources to the City.

A formal complete BIA will identify both operational and financial impacts to the City of Minneapolis if a disruption of business function or process occurs. A BIA is comprised of detailed information that helps identify recovery and mitigation strategies, as well as investment options to better manage operations in the event of a disaster. Furthermore, a BIA contains recovery time objectives (RTO) and recovery point objectives (RPO) that identify the acceptable loss time and amount of data or capital lost can be more accurately defined and aligned properly with business objectives.

#### ***Business Impact Analysis - Recommendation:***

To better identify critical business operations and assets, a comprehensive formal BIA should be performed. The BIA will aid the City in determining the potential impacts that result from a disruption, will help to prioritize the core business functions that should be restored and will help define the RPO and RTO for the DRP.

A link to the BIA performed by the *City of Virginia Beach* is being included as an example.<sup>1</sup>

#### **Business Impact Analysis – Management Response**

Minneapolis IT agrees with this recommendation, and will request funding to conduct a formal BIA in 2019, to identify and prioritize critical business functions for business continuity and disaster recovery planning.

The IT department currently does not have capacity to conduct the BIA. The funding request will cover the cost of one or more consultants to assist with the comprehensive information gathering and analysis.

To be successful, the BIA program must have strong enterprise executive sponsorship. This sponsorship will be critical for making sure all departments participate equally and openly.

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<sup>1</sup> <https://www.vbgov.com/government/departments/communications-info-tech/Documents/Master%20Technology%20Plan/Appendex%20I.pdf>

Leadership also needs to assess and determine the enterprise prioritization of business functions that will inform business continuity and disaster recovery plans.

The CIO will work with City leadership to establish such sponsorship and an enterprise charter for the BIA program.

## **II. Business Continuity Plan (BCP) and Disaster Recovery Plan (DRP) Integration**

Though a formal City wide emergency response plan and DRP exists, because a formal BIA could not be identified it is not clear how the critical IT systems were identified to be on the recovery list or if the list is complete. In total there are six applications that are part of IT's DRP. Although DRP testing was performed in December 2016, the tests were not performed on two out of the six applications that were identified. IT did identify additional applications critical to City operations were not directly overseen by IT, so may have separate DRPs.

A formal BCP notes business emergency procedures to be executed while a formal DRP documents the information systems recovery and protection procedures in the event of a disaster and is designed based on the results of the BIA. Moreover, the DRP identifies a Computer Security Incident Response Team (CSIRT) or another team of individuals that must be contacted during an emergency.

### ***Business Continuity & Disaster Recovery Plan Integration - Recommendation***

The completeness of the DRP and how it integrates with the overall City emergency response procedures should be reviewed and remediated. Having a complete DRP list of applications will help ensure the City is ready in the event of an emergency and that some critical applications are not missed.

### **Disaster Recovery Plan – Management Response**

Minneapolis IT will incorporate the objectives of this recommendation into its efforts to catalog and map all Minneapolis IT systems and services to a business owner and lifecycle maintenance plan. The catalog will provide the basis for the more comprehensive disaster recovery planning recommended here.

If the formal BIA recommended above is not performed, or until it is completed, IT's DR plan will use criteria such as life-safety, number of departments impacted, and ease of recovery, to prioritize systems and services for restoration.

Note that Disaster Recovery services designed to restore a particular system within a high-availability Recovery Time Objective (RTO) will come at additional cost. The business function prioritization that will come from the BIA should be used to direct spending toward IT services supporting critical functions.

## **Acknowledgments**

The City of Minneapolis Internal Audit team would like to acknowledge the time, effort and partnership put forth from the Information Technology Department. Their enthusiasm and collaboration were very helpful in completing this audit.